US008845207B2

(12) **United States Patent**
Lin et al.

(10) **Patent No.: US 8,845,207 B2**
(45) **Date of Patent: Sep. 30, 2014**

(54) **OPTICAL FIBER CONNECTOR AND ADAPTER CAPABLE OF PREVENTING DUST**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 958 days.

(21) Appl. No.: **12/911,794**

(22) Filed: **Oct. 26, 2010**

(65) **Prior Publication Data**

US 2012/0057825 A1 Mar. 8, 2012

(30) **Foreign Application Priority Data**

Sep. 3, 2010 (TW) ..... 99129833 A

(51) **Int. Cl.**
G02B 6/00 (2006.01)
G02B 6/36 (2006.01)

(52) **U.S. Cl.**
USPC **385/78**; 385/139

(58) **Field of Classification Search**
USPC 385/51, 53, 55, 57, 59, 88–90, 147
See application file for complete search history.

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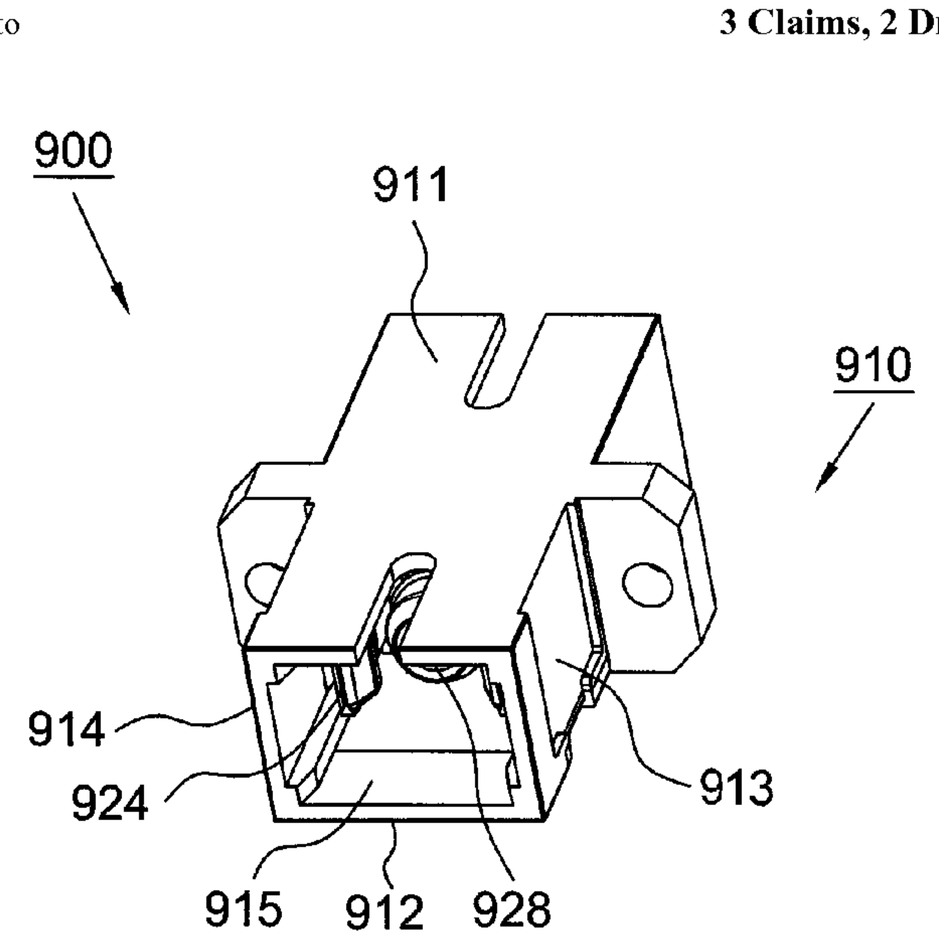
(57) **ABSTRACT**

An optical fiber adapter includes a housing, a hook member and an elastic body. The housing has an axial cavity defined by a first wall, a second wall, a third wall and a fourth wall. The hook member is positioned in the axial cavity which comprises a flange, a hollow cylinder and a pair of hooks. The hollow cylinder and hooks extends from one end of the flange and the hollow cylinder is positioned between the hooks. The elastic body is positioned on and around the hollow cylinder. When the optical fiber connector is inserted into the axial cavity of the optical fiber adapter, the ferrule will be inserted into the hollow cylinder and the elastic body will be in contact with inner walls of the inner housing of the optical fiber connector.

3 Claims, 2 Drawing Sheets



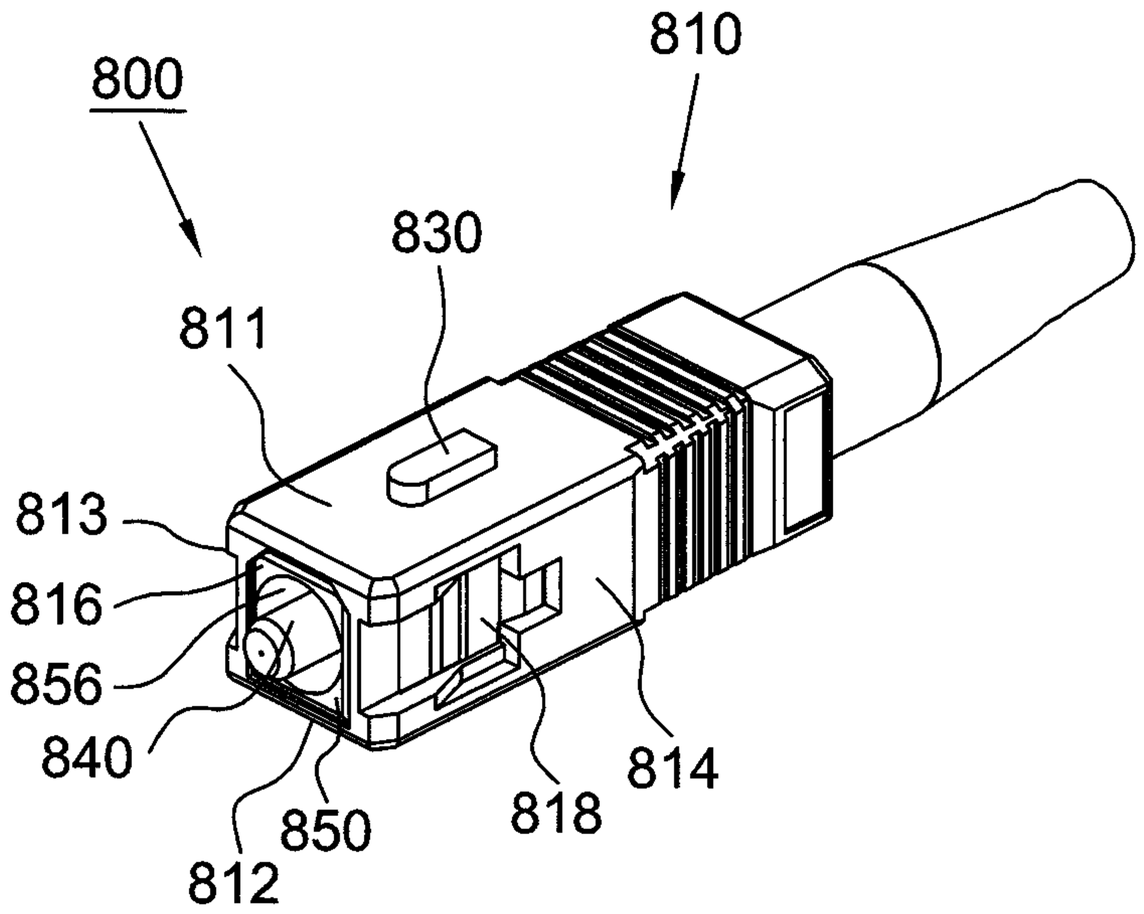


FIG. 1 (PRIOR ART)

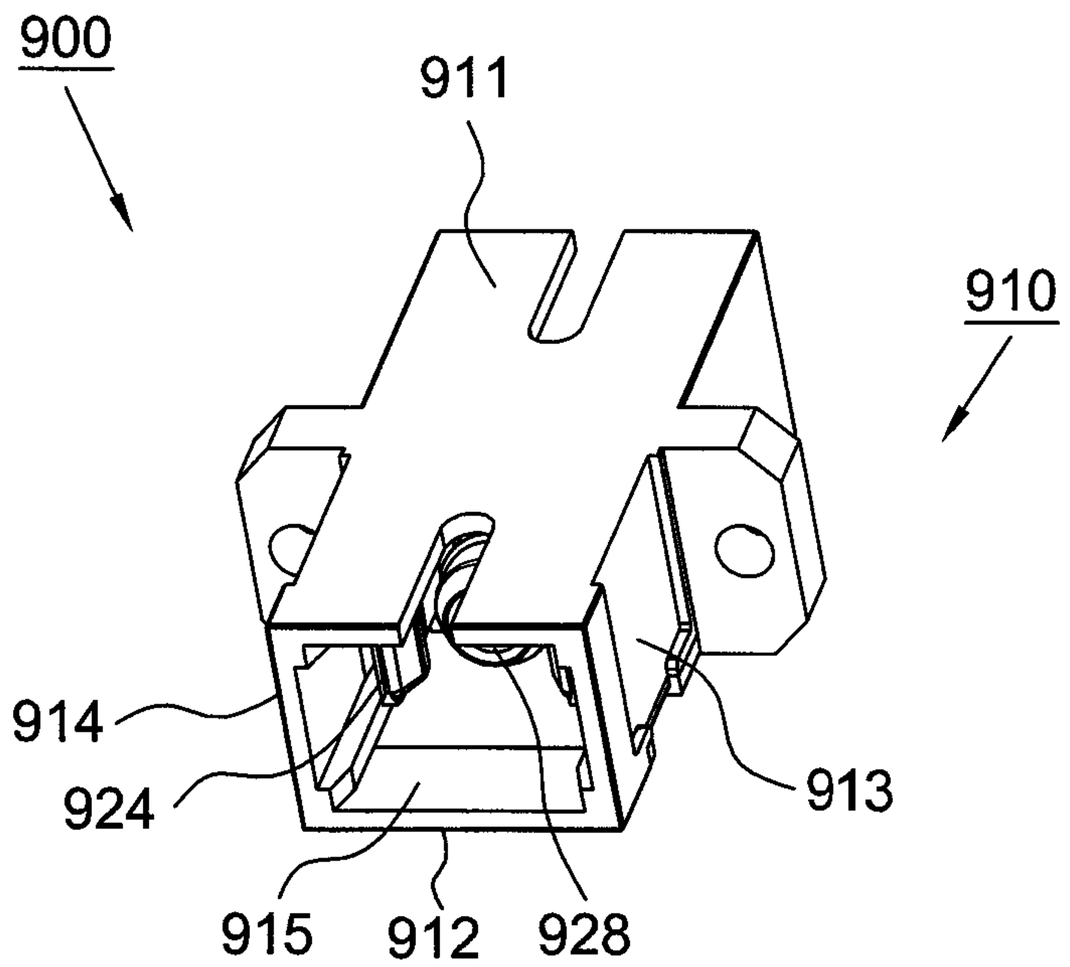


FIG. 2

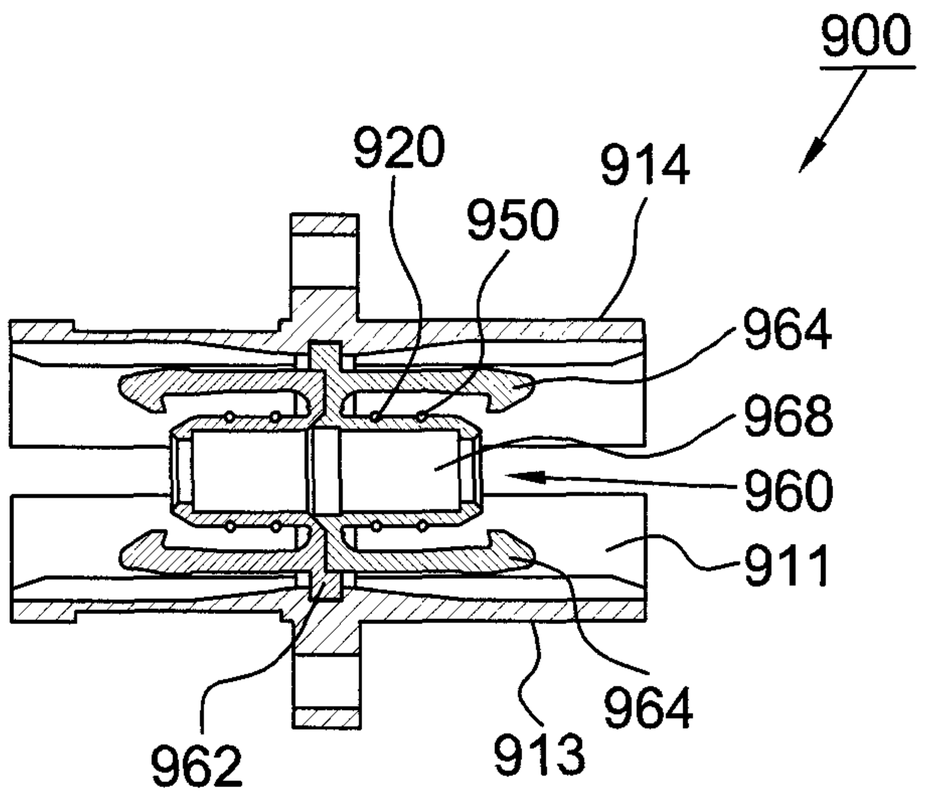

900
920
914
950
964
968
960
911
964
962
913

FIG. 3

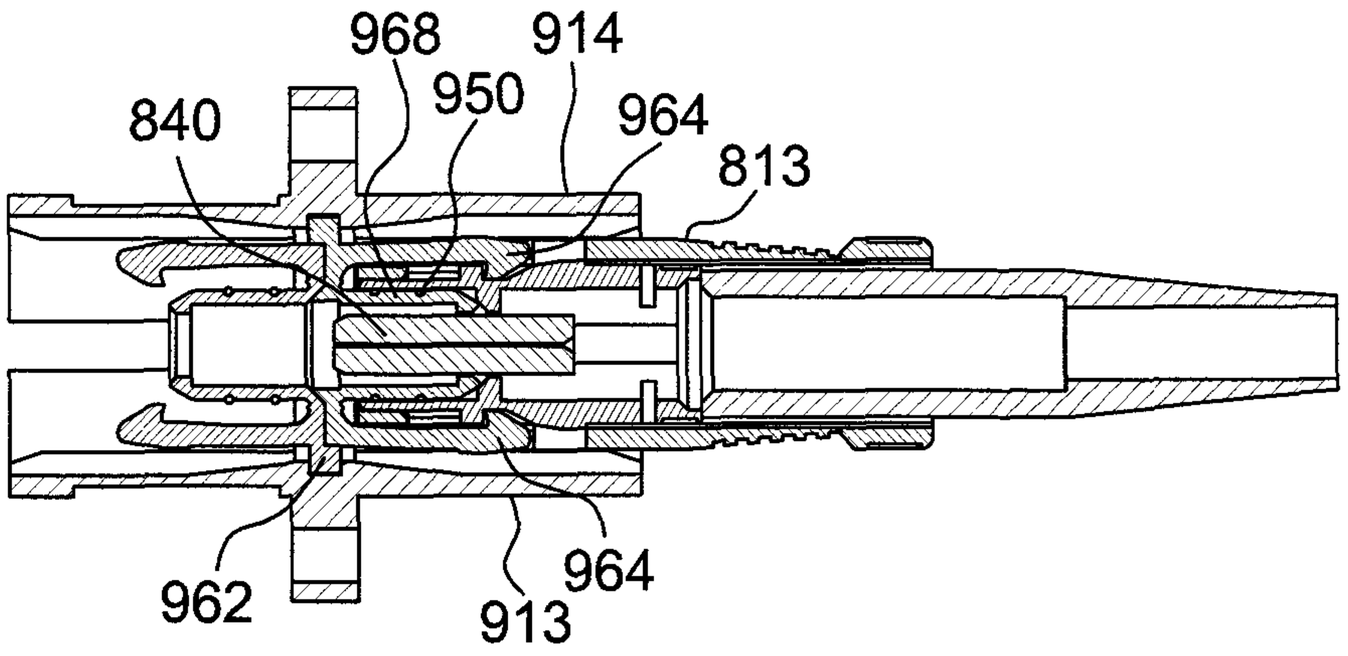

968
914
950
964
840
813
962
913
964

FIG. 4

OPTICAL FIBER CONNECTOR AND ADAPTER CAPABLE OF PREVENTING DUST

CROSS REFERENCE TO RELATED APPLICATION

This application claims the priority benefit of Taiwan Patent Application Serial Number 099129833 filed Sep. 3, 2010, the full disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an optical fiber adapter, and more particularly, to an optical fiber adapter capable of preventing dust.

2. Description of the Related Art

Fiber optics has revolutionized communication throughout the world. With the increased used of fiber optics it has become increasingly important to be able to connect and disconnect fiber optic cables from various sources. Two fiber optic cables can be optically coupled so that they are in communication with each other by using connectors and an adapter, thereby putting each fiber optic cable in communication with the other. The connectors are placed on the end of each cable and then plugged into the adapter. The adapter has two openings each one designed to receive a connector.

However, when an optical fiber connector is inserted into an optical fiber adapter, a narrow channel will be present between the connector and the inner walls of the adapter. Thus, external dust can still pass through this narrow space to contaminate the ferrule of the connector.

Accordingly, there exists a need to provide a solution to solve the aforesaid problems.

SUMMARY OF THE INVENTION

The present invention provides an optical fiber adapter capable of preventing dust from contaminating the ferrule of an optical fiber connector when the optical fiber connector is inserted into the optical fiber adapter.

In one embodiment, the optical fiber adapter of the present invention includes a housing, a hook member and an elastic body. The housing has an axial cavity defined by a first wall, a second wall, a third wall and a fourth wall. The hook member is positioned in the axial cavity which comprises a flange, a hollow cylinder and a pair of hooks. The hollow cylinder and hooks extends from one end of the flange and the hollow cylinder is positioned between the hooks. The elastic body is positioned on and around the hollow cylinder. When the optical fiber connector is inserted into the axial cavity of the optical fiber adapter, the ferrule will be inserted into the hollow cylinder and the elastic body will be in contact with inner walls of the inner housing of the optical fiber connector.

The foregoing, as well as additional objects, features and advantages of the invention will be more readily apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an elevated perspective view of a conventional SC type optical fiber connector.

FIG. **2** is an elevated perspective view of the optical fiber adapter according to the present invention.

FIG. **3** is a cross-sectional view of the optical fiber adapter according to the present invention.

FIG. **4** is a cross-sectional view illustrating that the optical fiber connector of FIG. **1** is inserted into the optical fiber adapter of FIG. **2**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. **1**, a conventional SC type optical fiber connector **800** has a generally rectangular shape with a square cross section. The connector **800** includes a rectangular hollow outer housing **810** comprised of a top side-wall **811**, a bottom side-wall **812**, a right side-wall **813** and a left side-wall **814**, wherein the right side-wall **813** is opposite to the left side-wall **814** and connects with the bottom side-wall **812** and the top side-wall **811**. A protrusion **830** is formed on the top side-wall **811** and a through opening **818** is formed on each of the left and right side-walls **814**, **813**. A hollow inner housing **850** is placed in the outer housing **810** that can move back and forth through a rectangular opening **816** on the front end of the outer housing **810**. In addition, a ferrule **840** is placed in the inner housing **850** and protrudes from a circular opening **856** on the front end of the inner housing **850** and from the opening **816** on the outer housing **810**. A spring is located inside the inner housing **850** to allow the ferrule **840** to move back and forth through the openings **816**, **856** (not shown in the figure).

Referring to FIGS. **2** and **3**, the optical fiber adapter **900** according to the present invention includes a generally rectangular housing **910**. The housing **910** has an axial cavity **915** defined by a top side-wall **911**, a bottom side-wall **912**, a right side-wall **913** and a left side-wall **914**. A pair of hook members **960** is located inside the axial cavity **915**. Each the hook member **960** is provided with a pair of hooks **964** extending from one end of a generally rectangular flange **962**. Each the flange **962** includes a hollow cylinder **968** located between the two hooks **964**. In addition, at least one annular indentation **920** is formed on the outer walls of the hollow cylinder **968**. At least one annular elastic body **950** is located in the indentation **920**. Specifically, the elastic body **950** is placed on and around the outer walls of the hollow cylinder **968**.

Referring to FIG. **4**, when the connector **800** is fully inserted into the adapter **900** of the present invention, the hollow cylinder **968** of the adapter **900** will be inserted into the inner housing **850** of the connector **800** through the opening **856** and the ferrule **840** of the connector **800** will be inserted into the hollow cylinder **968** of the adapter **900**. Furthermore, the two hooks **964** will hook to the outer walls of the inner housing **850** through the openings **818** on the left and right side-walls **814**, **813**, respectively. The annular elastic body **950** positioned on the hollow cylinder **968** of the adapter **900** will be brought into tight contact with the inner walls of the inner housing **850** of the connector **800**. In this way external dust will fail to enter the hollow cylinder **968** to contaminate the ferrule **840** received in the hollow cylinder **968** due to the obstruction of the elastic body **950** when the connector **800** is fully inserted into the adapter **900**.

Although the preferred embodiments of the invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

What is claimed is:

1. An optical fiber adapter configured to receive an optical fiber connector, wherein the optical fiber connector has an

outer housing, an inner housing and a ferrule, the outer housing has an opening formed thereon, the inner housing has an opening formed thereon and is positioned in the outer housing, the ferrule is positioned in the inner housing and protrudes from the openings of the inner and outer housings, the optical fiber adapter comprises:

a housing having an axial cavity defined by a first wall, a second wall, a third wall and a fourth wall;

a hook member positioned in the axial cavity, comprising a flange, a hollow cylinder and a pair of hooks; the hollow cylinder and hooks extending from one end of the flange, the hollow cylinder being positioned between the hooks; and

an elastic body positioned on and around the hollow cylinder; and

wherein when the optical fiber connector is inserted into the axial cavity of the optical fiber adapter, the ferrule will be inserted into the hollow cylinder and the elastic body will be in contact with inner walls of the inner housing of the optical fiber connector.

2. The optical fiber adapter as claimed in claim **1**, wherein the hollow cylinder has an indentation formed thereon, and the elastic body is positioned in the indentation.

3. The optical fiber adapter as claimed in claim **1**, wherein the optical fiber adapter is an SC type optical fiber adapter.

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